

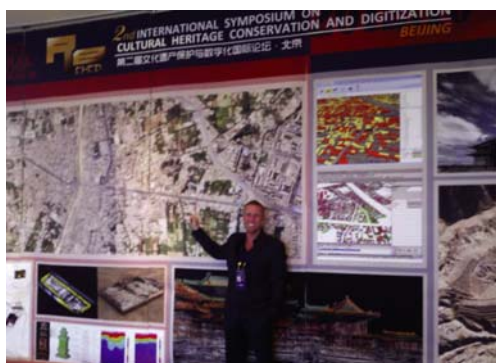
Accurate and actionable location-based information for the UN

by Joel Kristopher Myhre, MRICS

Recent technology advances and applications at the UN Institute for Training and Research Operational Satellite Applications Programme (UNITAR/UNOSAT) are highlighted by the author.

“Simply put, UNOSAT and its partners save lives with geospatial technologies.”

The author at the 2nd International Symposium on Cultural Heritage Conservation and Digitization in Beijing last year.



Set amidst the agricultural fields straddling the Swiss and French border, in the shadow of the advanced nuclear research facilities at CERN (the European Centre for Nuclear Research), the distinctive blue flag of the United Nation’s Operational Satellite Applications Programme (UNOSAT), has flown for over a dozen years. The site is home to a truly innovative geospatial initiative, delivering accurate and actionable location-based information across the various clusters of the UN and its partners.

UNITAR/UNOSAT’s wide range of satellite products, web-enabled GIS solutions, mobile and crowd-sourced solutions, and evolving UAV capabilities have, in no uncertain terms, set the state of the art for Humanitarian & Cultural Heritage in Crisis endeavours.

In April of 2012, UNOSAT, Esri and the World Meteorological Organization (WMO) hosted the first GIS for the UN conference in Geneva (<http://www.gisfortheun.com/>), complementing the longstanding global capacity building efforts of UNOSAT and the Asian Disaster Preparedness Centre in Bangkok. Other significant UNOSAT partners include the Global Disaster Alert & Coordination System (GDACS), where UNITAR/UNOSAT is the focal point for mapping and satellite imagery, including the development of GDACS Satellite Mapping Coordination System (<http://www.unitar.org/unosat/node/22/1975>), the UN Office for the Coordination of Humanitarian Affairs (UNOCHA), Joint Research Centre of the European Commission (JRC), et al.

Modern technologies to counter modern piracy

In 2011, UNOSAT turned a more strategic eye to the growing global effects of maritime piracy stemming from Somalia, Yemen, and plaguing much of the western Indian Ocean. Combining advanced remote sensing techniques and gathering extensive, granular geo-temporal data

from a variety of maritime shipping concerns, the report has been hailed as a much needed holistic overview of an expansive and expanding threat to global trade and security. According to the authors “Key findings include:

1. “The Piracy Big Bang”: Somali piracy underwent a qualitative transformation between 2007 and 2008 following strategic changes in

their rules of engagement and the early development of an operational blue water naval capacity in the Gulf of Aden and Indian Ocean.

2. The standard indicators commonly cited as evidence of growing international naval pressure on piracy (1. falling hijacking rates and 2. the growth of piracy in the Indian Ocean) are more complex than originally thought and less convincing as primary barometers for measuring the success of international counter-piracy efforts.

3. The observed drop in hijacking success rates must be qualified by a potential statistical bias resulting from changes in attack reporting over time, and may reflect a naturally occurring decline resulting from more aggressive pirate rules of engagement and a large influx of untrained pirate recruits. Further, a detailed spatial and temporal analysis of piracy in the Indian Ocean strongly suggests that pirate militias originally viewed their move into deep ocean waters as part of a larger expansion strategy, predating major naval patrols in the Gulf of Aden.

ICT-GIS tools for global health

UNOSAT continues to collaborate with the World Health Organization and the UK Health Protection Agency vis-à-vis the timely space-based UAV and mobile geospatial technologies that can help with everything from the logistics of disease eradication to the more tactical challenges of high visibility, high consequence events such as the Hajj, FIFA World Cup events and other mass gatherings.

In synergy with ongoing efforts by WHO to build an interconnected global network of Emergency Operation Centers (EOCs) fielding UNOSAT geospatial data, in September 2012 senior UK and Brazilian Olympic public health officials participated in a UNOSAT mobile GIS technology demonstration at the London 2012 Paralympic Games – go to <http://www.unitar.org/unosat/node/22/2225> for more information.

Preserving the world’s cultural heritage

Given devolving security situations in Libya, Syria and Mali (see the image on the next page, courtesy of UNOSAT) and concomitant threats to immovable cultural heritage sites, UNOSAT recently liaised with the International Council on Monuments and Sites (<http://www.icomos.org/en>), UNESCO and other partners at the 2nd International Symposium on Cultural Heritage Conservation and Digitization, Beijing – www.re-relic.com

In a crowded world, leveraging the crowd's data

Along with the GIS and remote sensing innovations described above, UNITAR UNOSAT continually charts a digital course towards the most cutting-edge arenas of geomatics vis-à-vis its enabling of crowd-sourced mobile solutions and harnessing the global subject matter expertise of 'cyber citizens' to help better understand the myriad of complex emergencies now being assisted by the UN.

More recently, in the Fall of 2012, UNITAR's Director of Research, Mssr **Francesco Pisano**, greeted the youthful participants of the Endignorance.org gathering at the University of Geneva, continuing UNOSAT's tradition of fostering innovative crowd initiatives such as the GISCorps - <http://www.giscorps.org/>,

The map shows the location of cultural heritage sites in the city of Timbuktu and shows just what is at stake in Mali's capital.

OpenStreetMap, et al.

And to finally go where geomatics technology has not gone before, UNOSAT's collaboration with UrtheCast to enable High Definition (HD) geospatially-oriented video streaming from space has been touted as a 'game changing' endeavour, with applications to high profile global events, such as the Olympic Games or Hajj, complex heritage in crisis scenarios, or the many dynamic refugee locales of the world. Simply put, UNOSAT and its partners save lives with geospatial technologies.

- For more information on UNITAR's UNOSAT programme, please go to www.unitar.org/unosat or e-mail unosat@unitar.org

About the author

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GDACS & SMCS

GDACS is a cooperation framework for natural disaster alerts operating under the umbrella of the United Nations. It includes disaster managers and disaster information systems worldwide and aims at coordinating information and filling gaps in the first phases after a major disaster. To do this, GDACS provides real-time access to web-based disaster information systems and useful coordination tools.

The Satellite Mapping Coordination System (SMCS), of GDACS is a tool for GIS-experts working with satellite imagery for specific events. It allows experts to see which images are collected and where and which entity is working on what type of analysis. This facilitates horizontal co-ordination links as opposed to time-consuming top-down models and effectively reduces duplication of efforts and the pushing of low value maps to the user community. In addition to being an operational coordination tool for satellite image analysis professionals, SMCS is also a metadata archive for past events, and a discussion forum.

